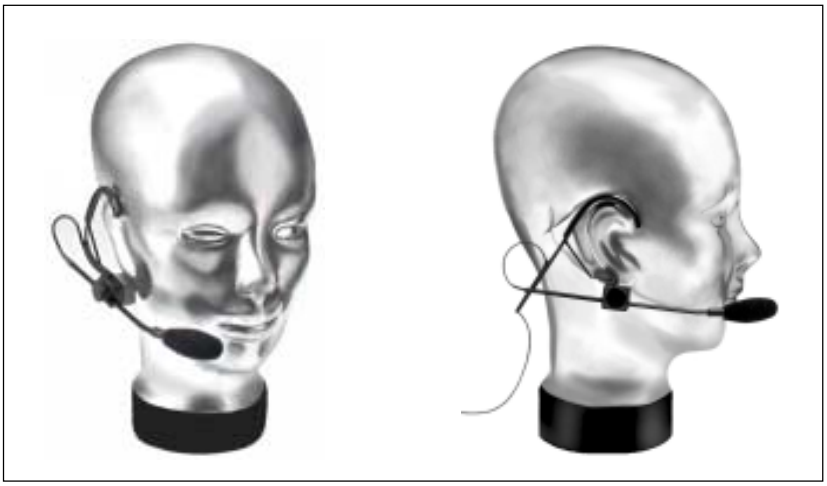
CM-312A
CM-312AE

HYPERCARDIOID HEAD-WORN CONDENSER MICROPHONE



The Crown CM-312A is a rugged, lightweight head-worn microphone designed for aerobics, live entertainment, and sports broadcasting. It is intended for applications that require a light, inconspicuous mic.

Because the microphone is to the side of the mouth, breath pops are eliminated. The sound of the CM-312A can be tailored to taste by moving the microphone closer or farther from the corner of the mouth.

The CM-312A sounds like the best handheld microphones. Its hypercardioid pickup pattern reduces feedback and aids isolation. In difficult situations, the Crown CM-311A headworn mic is recommended because it picks up even less feedback and leakage than the CM-312A.

Designed for comfort, the headband fits behind the head and disappears in use. Both the headband and boom adjust to fit any head. Because of the boom's unique behind-the-ear design, it does not cover up the user's face.

Two models are available: CM-312A and CM-312AE. The CM-312A is powered by a 9V battery or phantom power. It has a battery belt pack with a battery on/off switch, a programmable mic on/off switch, and a "Mic On" LED. The CM-312AE has no connector; you connect it to a wireless transmitter of your choice.

How to adjust for best fit

For best results, the CM-312A MUST be custom fitted to one wearer's head. This simple procedure takes only a few minutes. Please refer to Fig. 5 and locate the parts described.

1. If the microphone is for yourself, we suggest that you use a mirror to double check the fit as you make adjustments.

2. Loosen (just a little) the thumbscrew located on the outside of the foam block, part way back on the boom. This allows the boom to slide in and out, and to rotate left and right.

3. Now bend the headband wire to fit your head. Put the foam-block wire behind your

Specifications

Transducer type: Electret condenser.

Frequency response (typical): 50 Hz to 17,000 Hz (see Fig. 1).

Polar pattern: Hypercardioid (see Fig. 2).

Impedance: CM-312A, 75 ohms balanced. CM-312AE, 6 kilohms unbalanced.

Recommended load impedance: CM-312A, 1000 ohms or greater. CM-312AE, 10 kilohms.

Open-circuit sensitivity, typical, close-talking: CM-312A, 3.8 mV/Pa* (–48.5 dB re 1V/Pa), CM-312AE, 2.9 mV/Pa (–51 dB re 1V/Pa).

Power sensitivity, typical, close-talking: CM-312A: –43 dB re 1 mW/Pa*. CM-312AE: –65 dB re 1 mW/Pa.

Equivalent noise level (self noise): 31 dB SPL typical (0 dB = 0.0002 dyne/cm^2), A-weighted.

S/N ratio: 63 dB at 94 dB SPL.

Maximum SPL: 148 dB SPL produces 3% THD.

Operating voltage: CM-312A, 9V DC internal alkaline battery or 18-48V phantom power. CM-312AE, 3–9V DC from the transmitter's battery.

Polarity: Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3, and on CM-312AE white lead with respect to shield.

Current drain: CM-312A, 6 mA nominal. CM-312AE, 0.27 mA nominal.

Battery life: CM-312A, 90 hours. CM-312AE, approximately equal to transmitter battery life.

Off-attenuation: 70 dB @ 1kHz.

Output connectors: CM-312A, 3-pin pro audio (XLR type). CM-312AE, supply your own to match your transmitter.

Cables (CM-312A): 2-conductor shielded, unbalanced cable, 3-feet (0.915-m) from mic capsule to battery pack. Use 2-conductor shielded mic cable (not included) between XLR connector and mixer mic input.

Cable (CM-312AE): 45-inches long (1.144-m), 2-conductor shielded unbalanced cable, unterminated. In-line with this cable is a small circuit module that equalizes the microphone signal.

Materials: High-impact plastic and PVC mic housing, brass boom, steel wire headband, high-impact plastic and steel battery pack.

Finish: Satin black.

Net weight: Head-worn mic, 1.5 oz (43 g). CM-312A belt pack and battery, 6.1 oz (173 g).

Dimensions: Headband 5.5 in. (13.97 cm) diameter, adjustable. Boom approximately 5.75 in. (14.61 cm). See Figs. 3 and 4.

Included accessories: Microphone carrying case, WS-7 foam pop filter and clothing clip for aerobics.

Optional accessories: PH-4B phantom power supply (4 channels, AC powered). PH-1A phantom power supply (1 channel, battery or AC-adapter powered).

*1 pascal = 10 dynes/cm^2 = 10 microbars = 94 dB SPL.

Fig. 1

Frequency Response

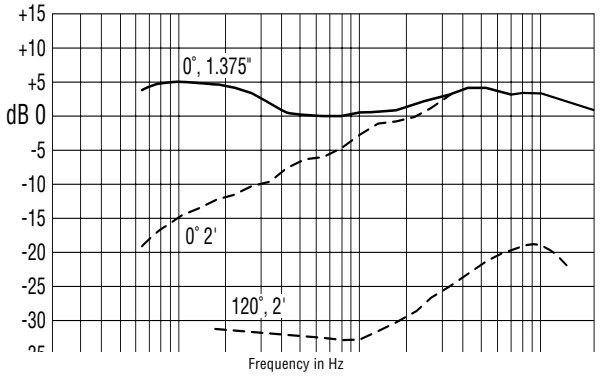


Fig. 2

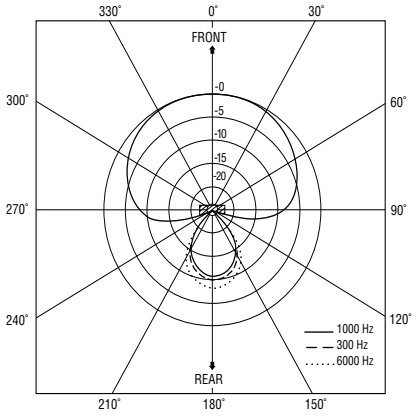
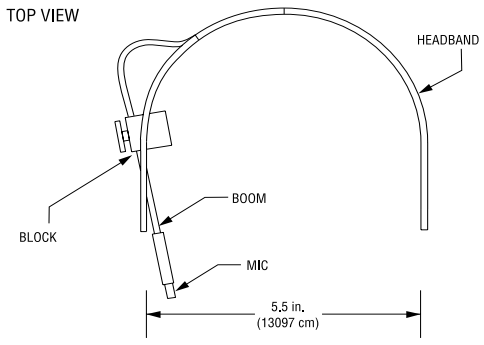


Fig. 3

Dimensions



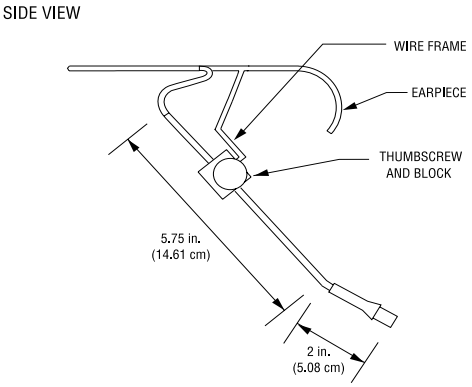


Fig. 4

Dimensions, Battery Pack

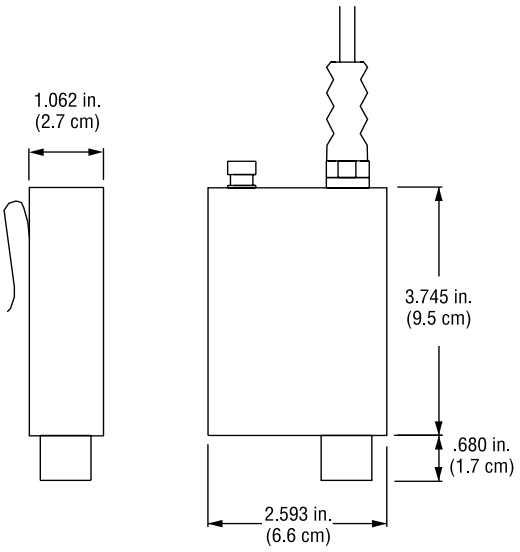
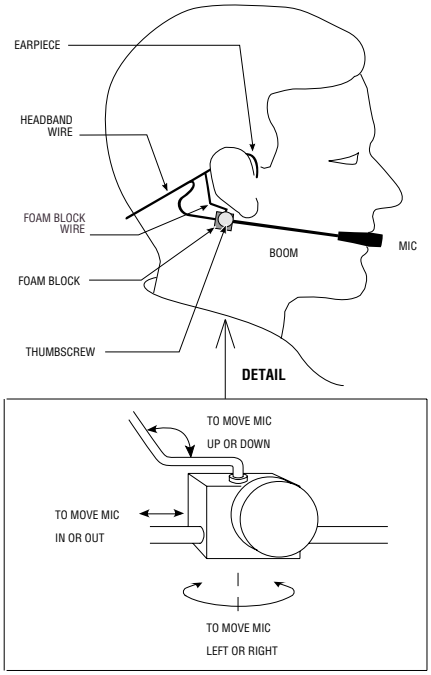
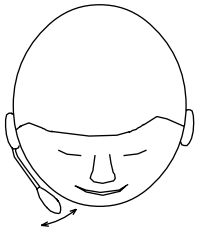


Fig. 5





ear. Then you can bend the earpieces to fit snugly around your ears. The back of the headband should fit firmly against the back of your neck.

4. Next, adjust the foam pad snug against your head or neck. To do this, bend the wire that goes into the foam block. CAUTION! Do not bend the boom itself – just the foam-block wire. A snug fit of the foam pad prevents boom bounce when you move around.

5. Be sure that the thumbscrew is still loosened a little. Position the mic to the side of your mouth, about 1-inch (2.54 cm) in front. To do this, move the boom in or out, and left or right. Move the mic up or down by bending the foam-block wire.

Changing the mic position changes the ratio of lows to highs. Adjust the position for the sound you prefer. If you hear breath pops, move the mic farther to the side of your mouth (Fig. 5). Tighten the thumbscrew.

Once you've adjusted the headset, it should remain in that position – no further adjustments are needed.

When using the mic for aerobics, you'll need to keep the cable in place. To do this, attach the cable to the clothes clip (included), and clip it to the back of your shirt. As shown in Fig. 6, be sure that the cable droops BELOW the clip. That way, sweat drips off the cable instead of into the electronics.

Fig. 6

Additional WS-7 foam pop filter and clothing clips can be ordered from Crown's Parts Department.

How to insert a battery in the CM-312A belt pack

1. Access the battery by sliding open the battery cover.

2. Insert a fresh 9V alkaline battery (Mallory Duracell MN9100 or equivalent) into the battery tray. The battery cover shows the correct polarity.

3. Replace the battery cover. To prolong battery life, turn off the battery switch when not in use.

If you're using phantom power, and the battery switch is on, the battery will take over automatically if phantom power fails.

After 85 hours of use, or if the sound is distorted, it's time to replace the battery.

How to program the mic on/off switch

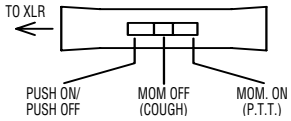
The mic on/off switch can be programmed to work in three ways:

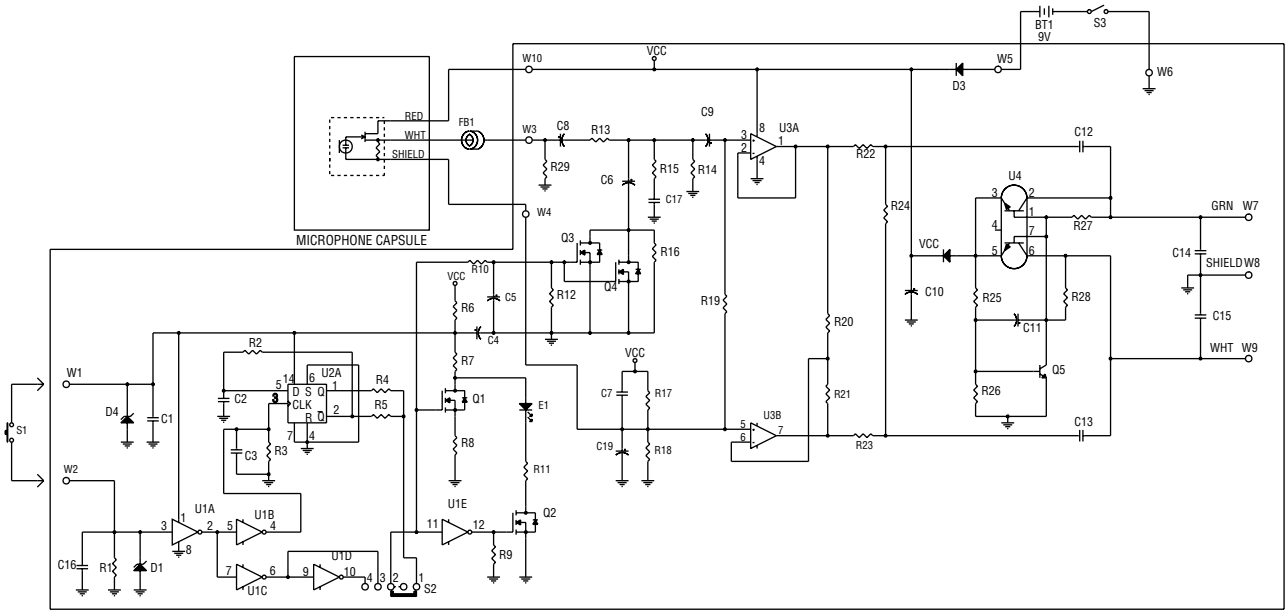
* Push-on/push-off (as supplied).

* Momentary on (push to talk).

* Momentary off (cough button).

To change the switch operation, open the beltpack case by removing the three screws. Set the switch as shown below:





MICROPHONE ELECTRONICS

CM-312A Schematic

CM-312A
CM-312AE

How to connect the CM-312AE to a wireless transmitter

1. Solder on a connector that mates with your transmitter. Technical Bulletin #3 (included) shows the correct wiring for various transmitters.

2. Plug in the cable. Adjust the trim pot on the transmitter input to prevent distortion.

Architects' and Engineers' Specifications

The microphone shall be the Crown Model CM-312A or equivalent. The microphone shall be a head-worn hypercardioid type of electret-condenser design. The microphone shall exhibit excellent off-axis response and gain-before-feedback. The microphone shall have an adjustable headband, adjustable boom with locking thumbscrew, and foam pop filter.

Model CM-312A shall include a headworn mic and a battery belt pack. Model CM-312AE shall be the head-worn microphone alone. In the CM-312A, a 3-feet (0.915-m), permanently attached, two-conductor shielded cable shall connect the microphone to the belt pack. The belt pack shall include a 3-pin pro audio (XLR type) connector, a battery on/off switch, a programmable mic on/off switch, and a "Mic On" LED. In the CM-312AE, a 45-inch (1.144-m), permanently attached, two-conductor shielded cable can be connected to a transmitter.

The CM-312A shall be powered by a 9V battery in the belt pack, or by 18 to 48V phantom power. The CM-312AE shall be powered by 3–9V from a transmitter.

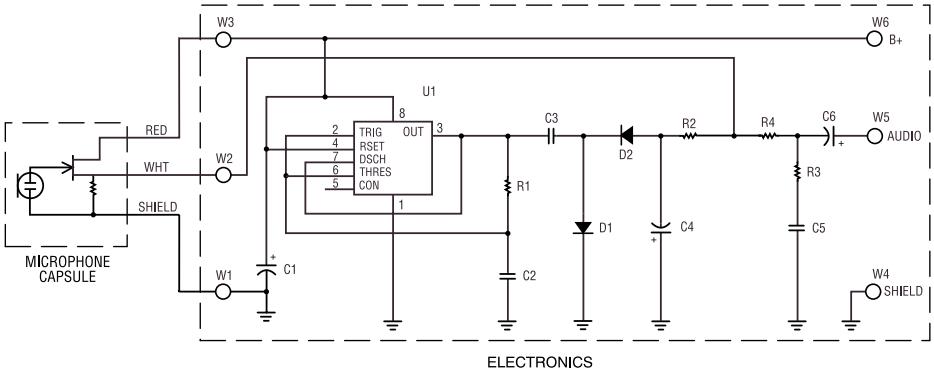
Nominal open-circuit sensitivity shall be 3.8 mV/Pa. Maximum SPL shall be 148 dB SPL for 3% THD. Equivalent noise shall be 31 dBA nominal. Frequency response shall be 50 Hz to 17,000 Hz with a uniform off-axis response, over 20 dB down at the rear nulls. The Crown models CM-312A and CM-312AE are specified.

Warranty

Crown professional microphones are guaranteed unconditionally against malfunction from any cause for a period of three years from date of original purchase. Please refer to the enclosed full warranty statement for more detail.

Service

If the microphone does not function properly, check that it is aimed correctly and is connected as described in this data sheet. If the microphone is defective, return it in the original packaging to: **Crown Service Department, Plant 2 SW, 1718 West Mishawaka Road, Elkhart, IN 46517**. For further assistance or technical support call 800-342-6939.



CM-312AE Schematic

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